

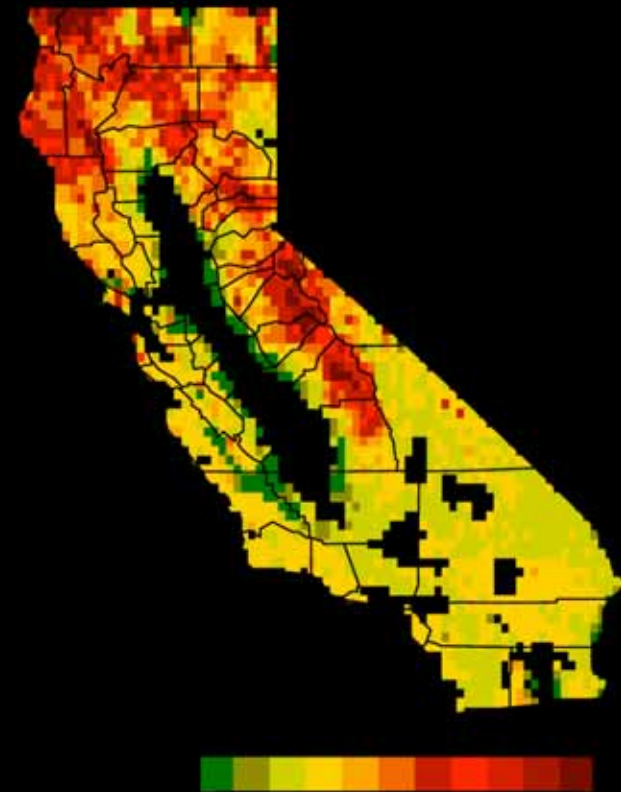
Changes in Fire Extent and Frequency Under Climate Change and Increased Urbanization

September 10, 2009

6th Annual Climate Change Symposium
Sacramento, CA

A. Westerling – UC Merced
B. Bryant – RAND
H. Preisler & T. Holmes – USFS
H. Hidalgo & T. Das – SIO
S. Shrestha – UC Merced

California Energy Commission
NOAA OGP ★ USDA Forest Service



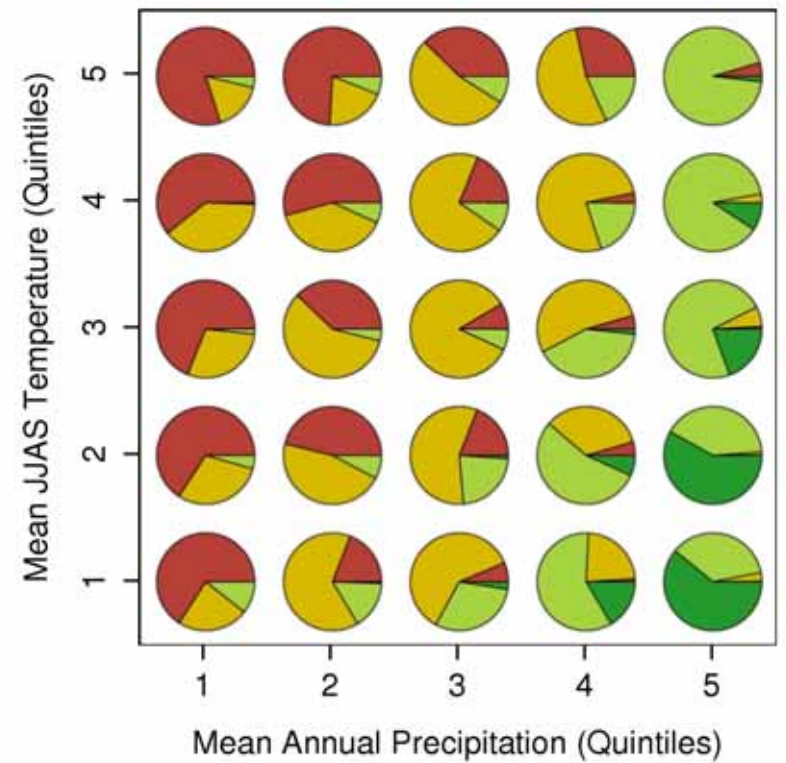
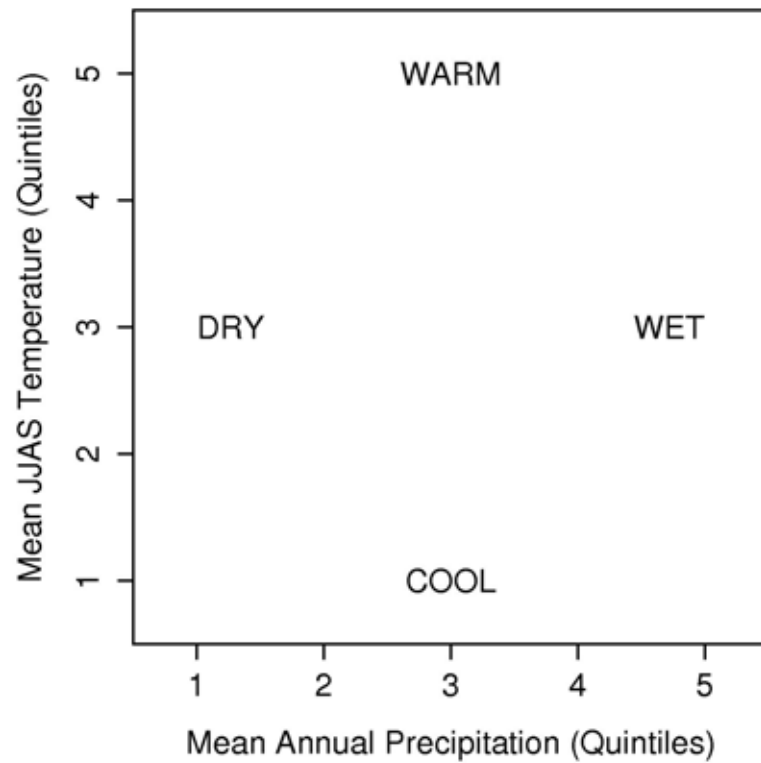
Emissions Scenarios

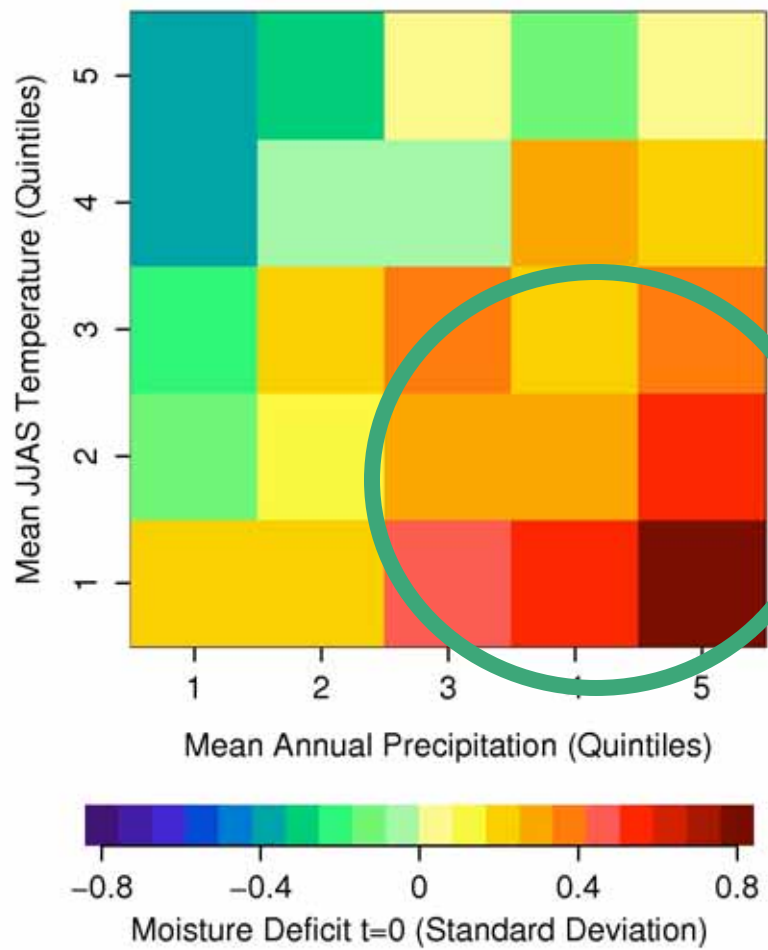
sresA2

sresB1

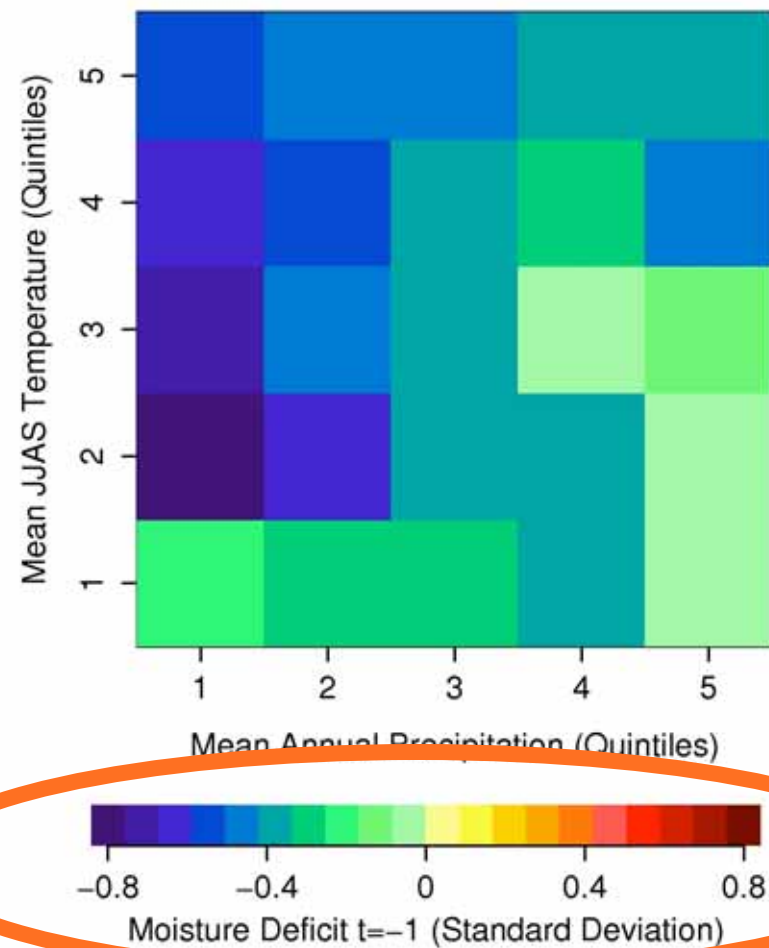
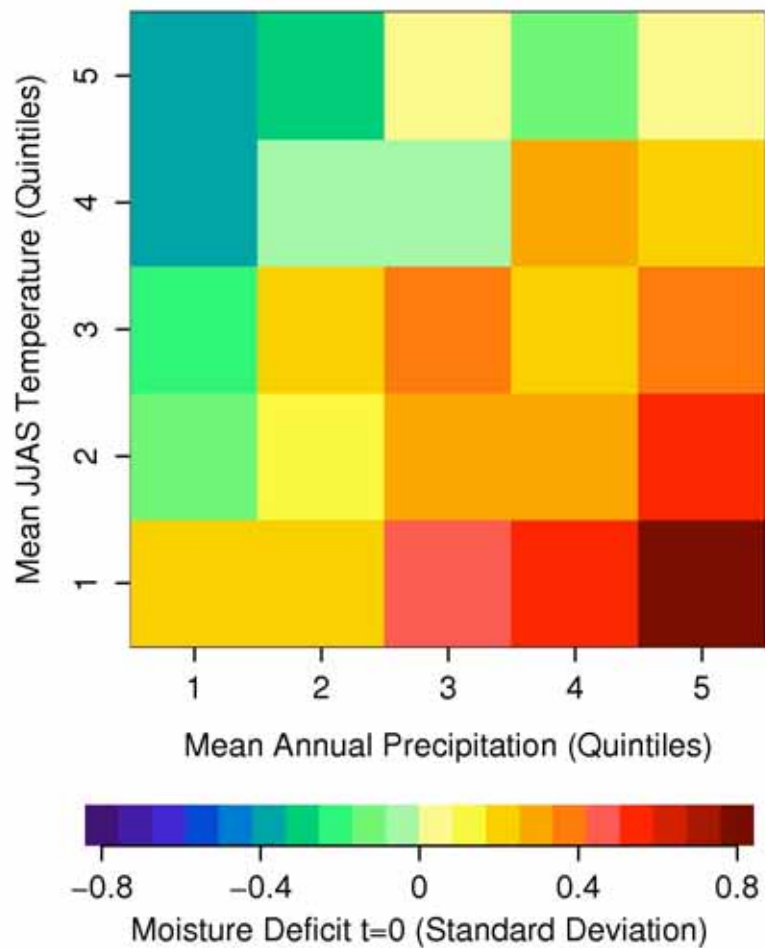
Where do we summarize Variability?
vs
Where can we assess the effects of Policy?

Climate Models	Downscaling Methods	Hydrologic Modeling	Fire & Veg Change	Development Scenarios
cnrmcm3	Analog	VIC simulation	statistical modeling	Lo/mid/hi Population growth
gfdlcm21	BCSD			Clustering/footprint
microc32med				
mpiecham5				Impacts
ncarccsm3				Property Losses Suppression Costs
ncarpcm1				Ecosystem Services



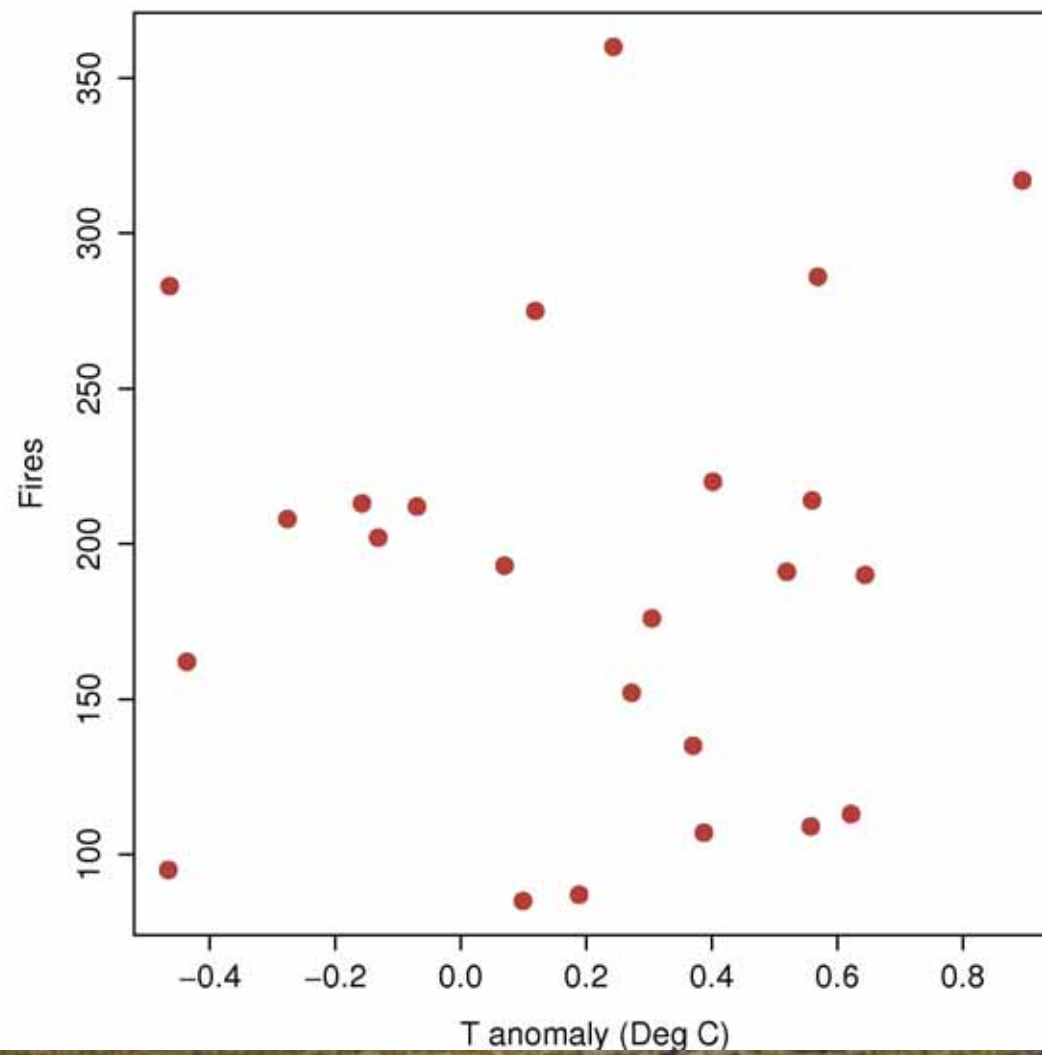


Cool, Wet Forests
Burn in Dry Years



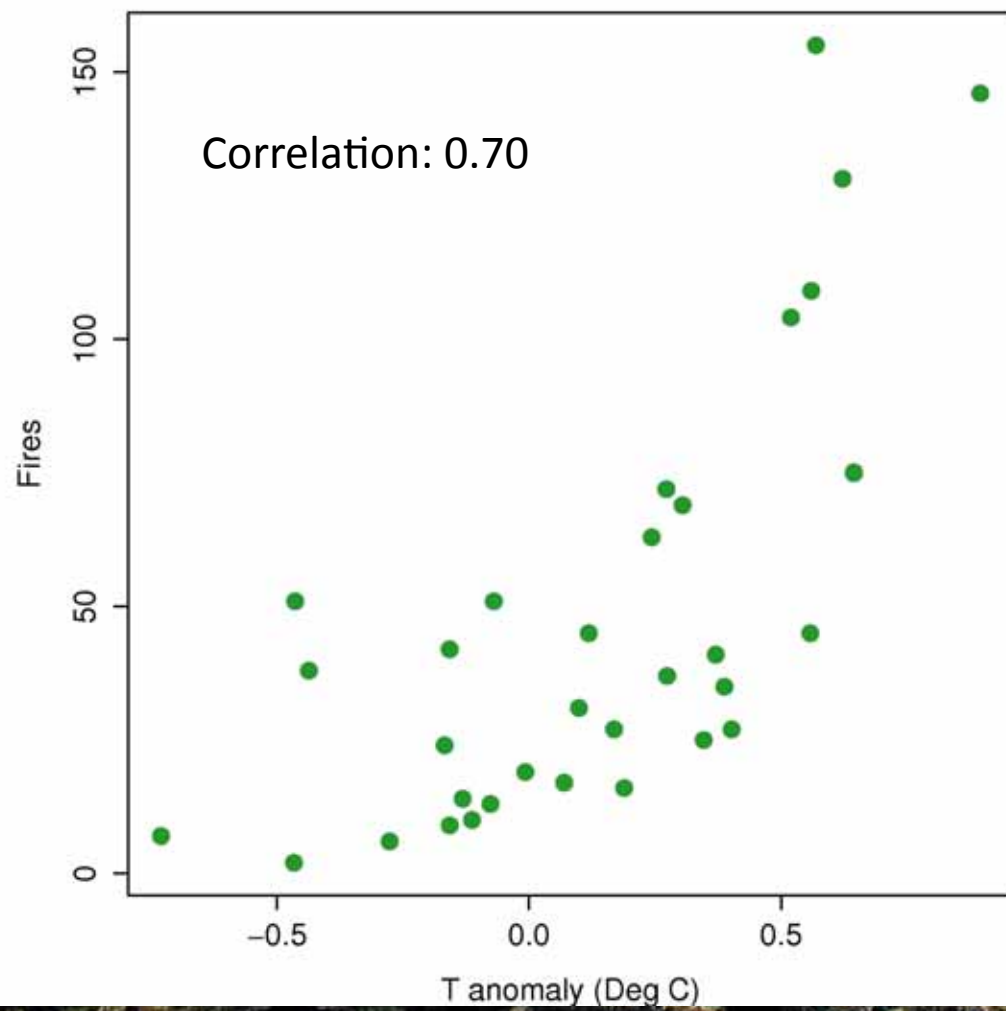
Was the year before the fire
burned wet or dry?

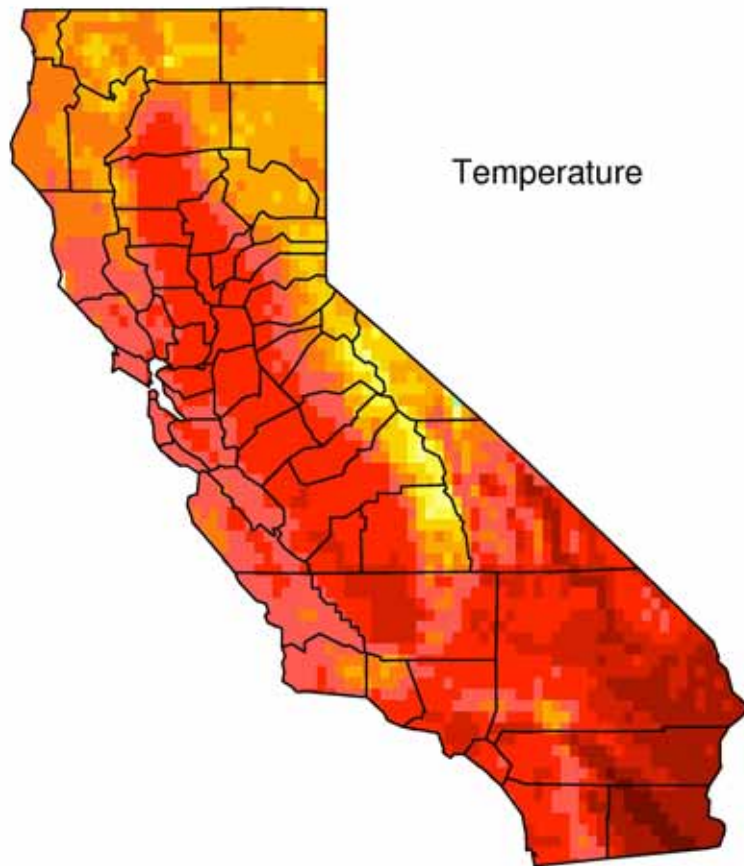
Grass/Shrub Fires and Temperature



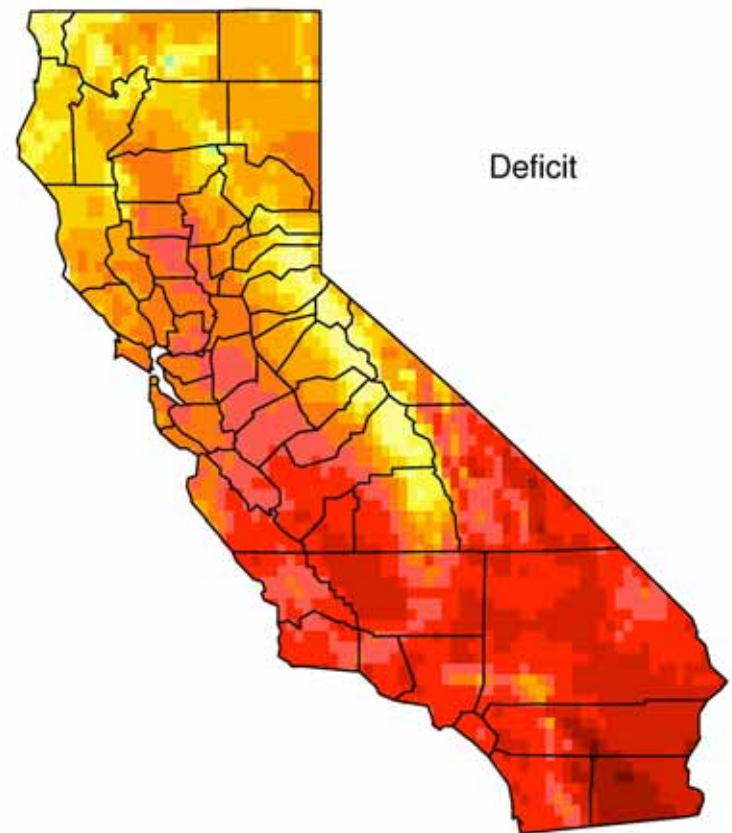
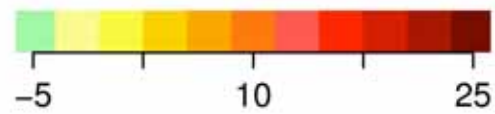
Correlation: 0.08

Forest Fires & Temperature

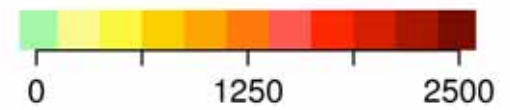


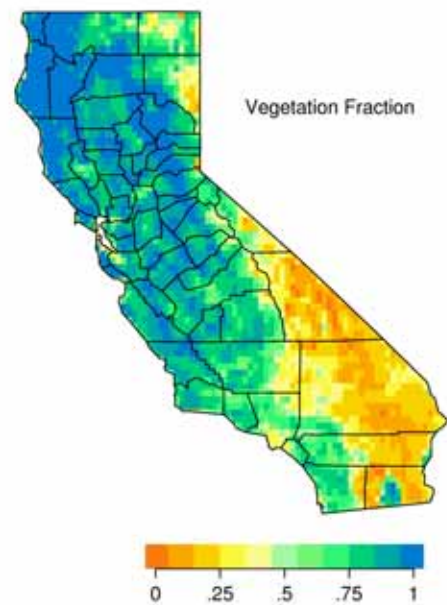
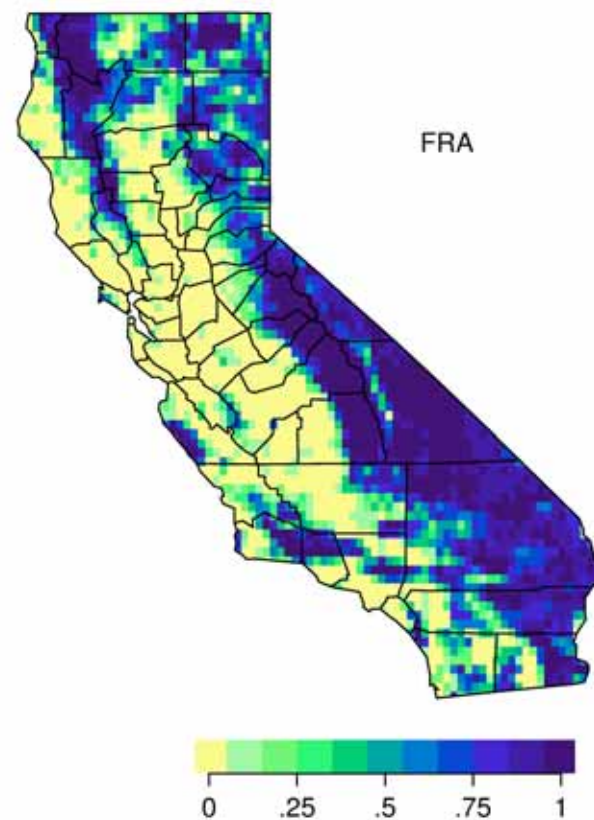
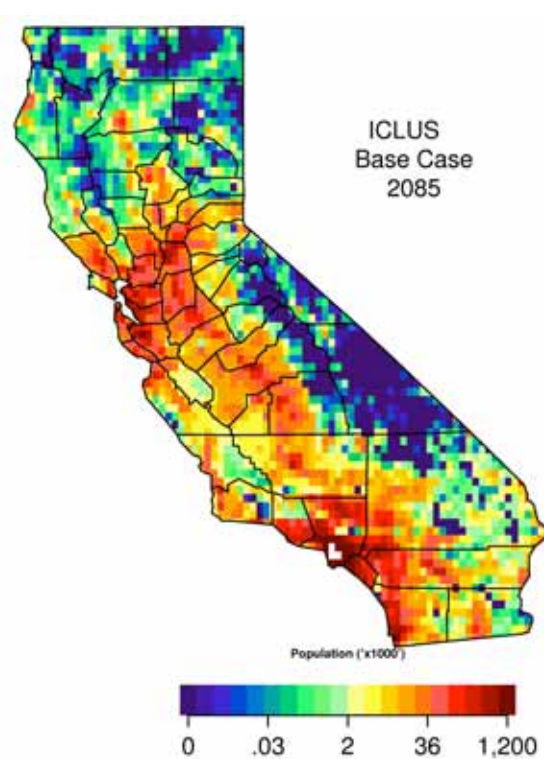
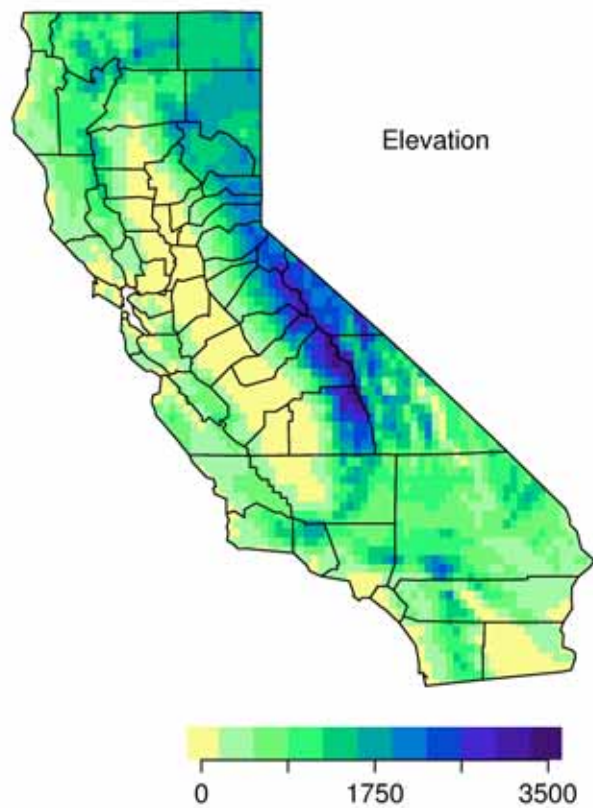


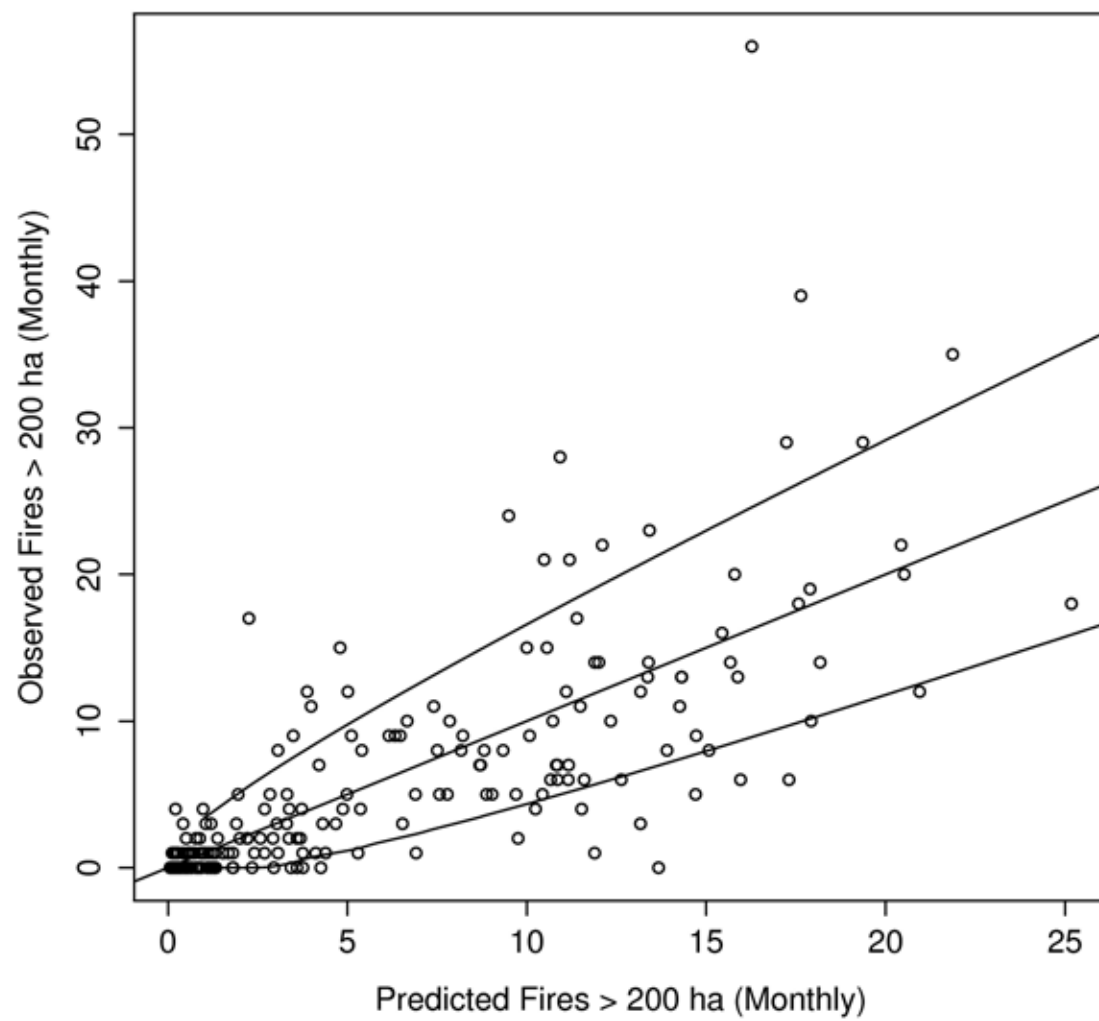
Temperature



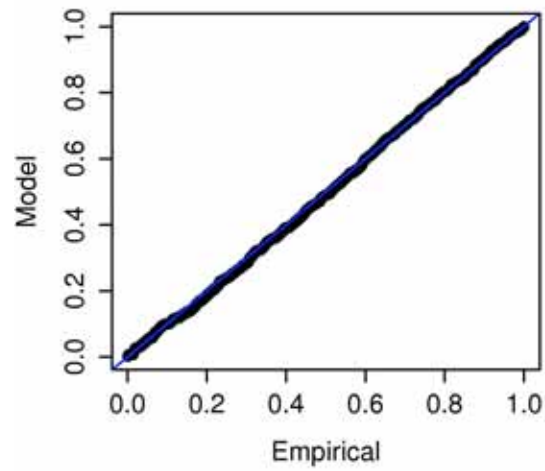
Deficit



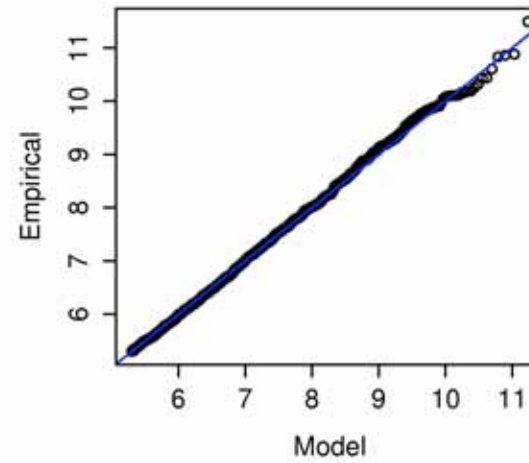




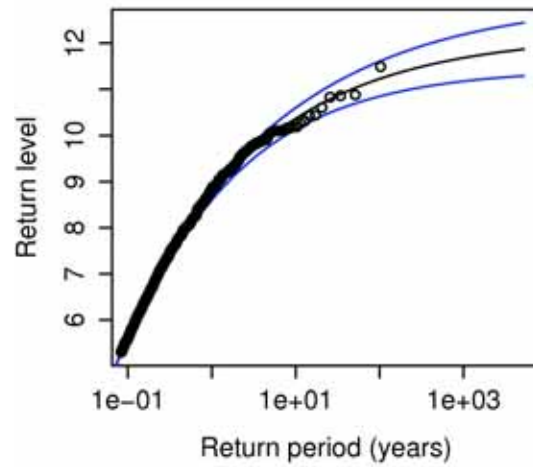
Probability Plot



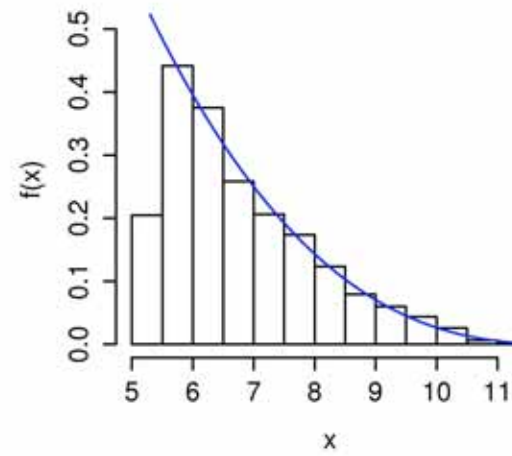
Quantile Plot



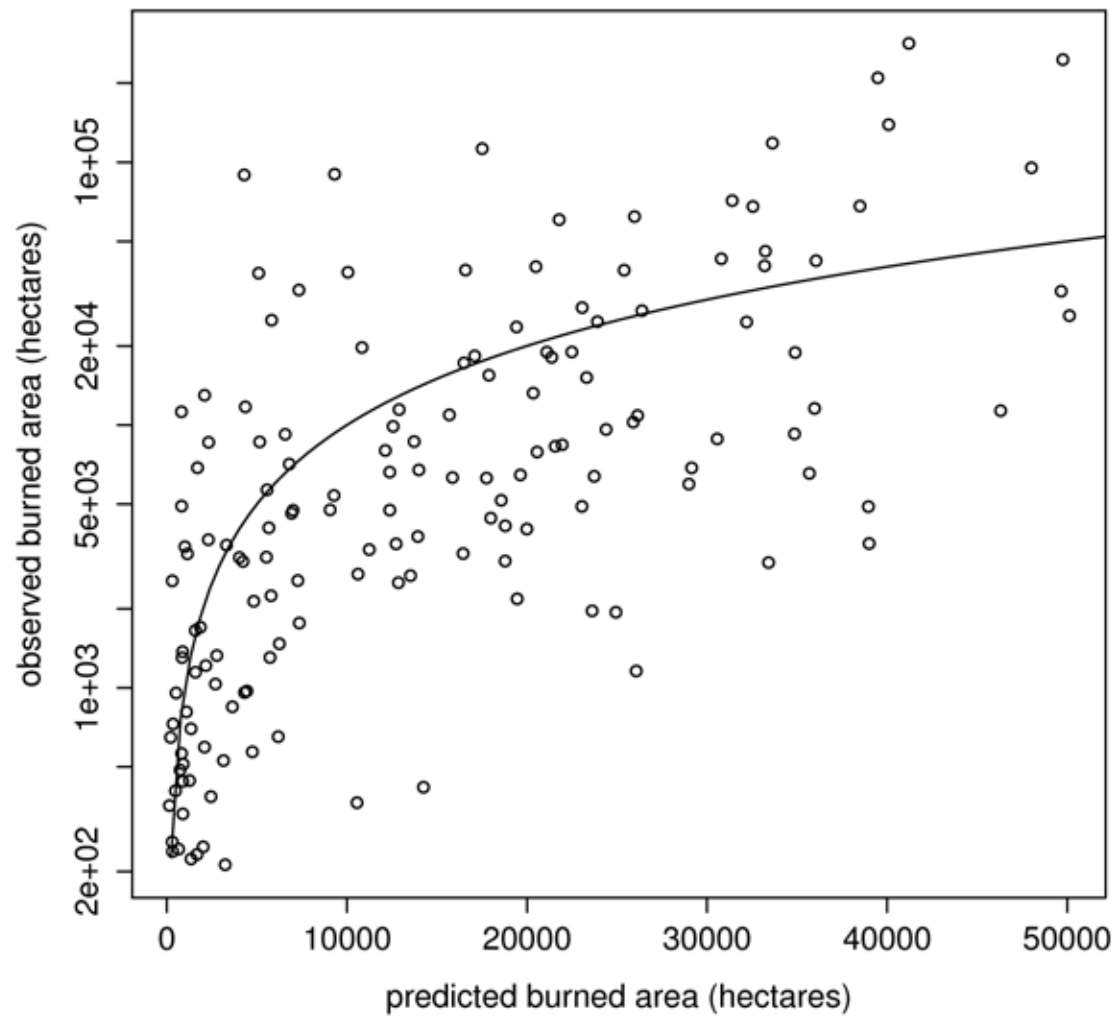
Return Level Plot



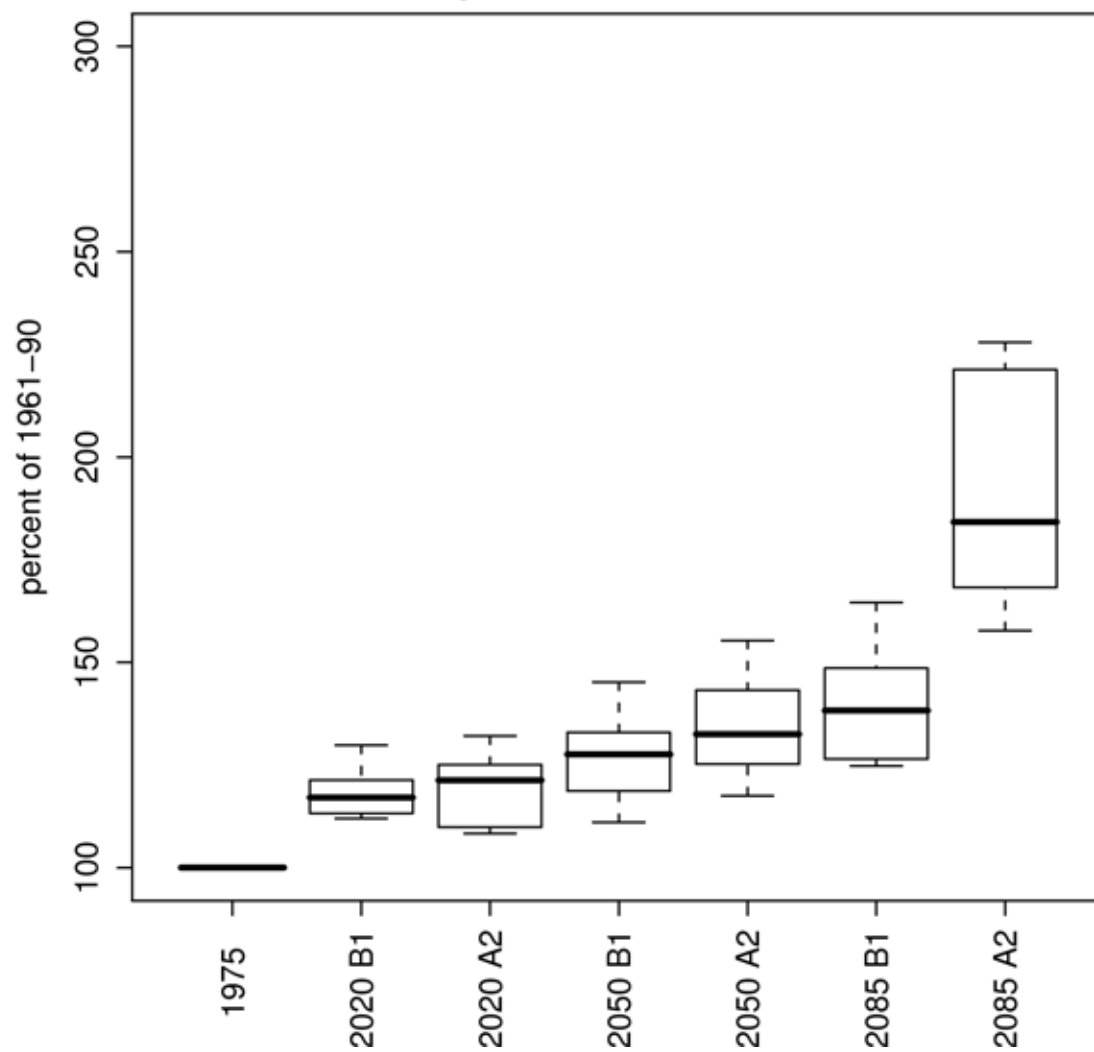
Density Plot



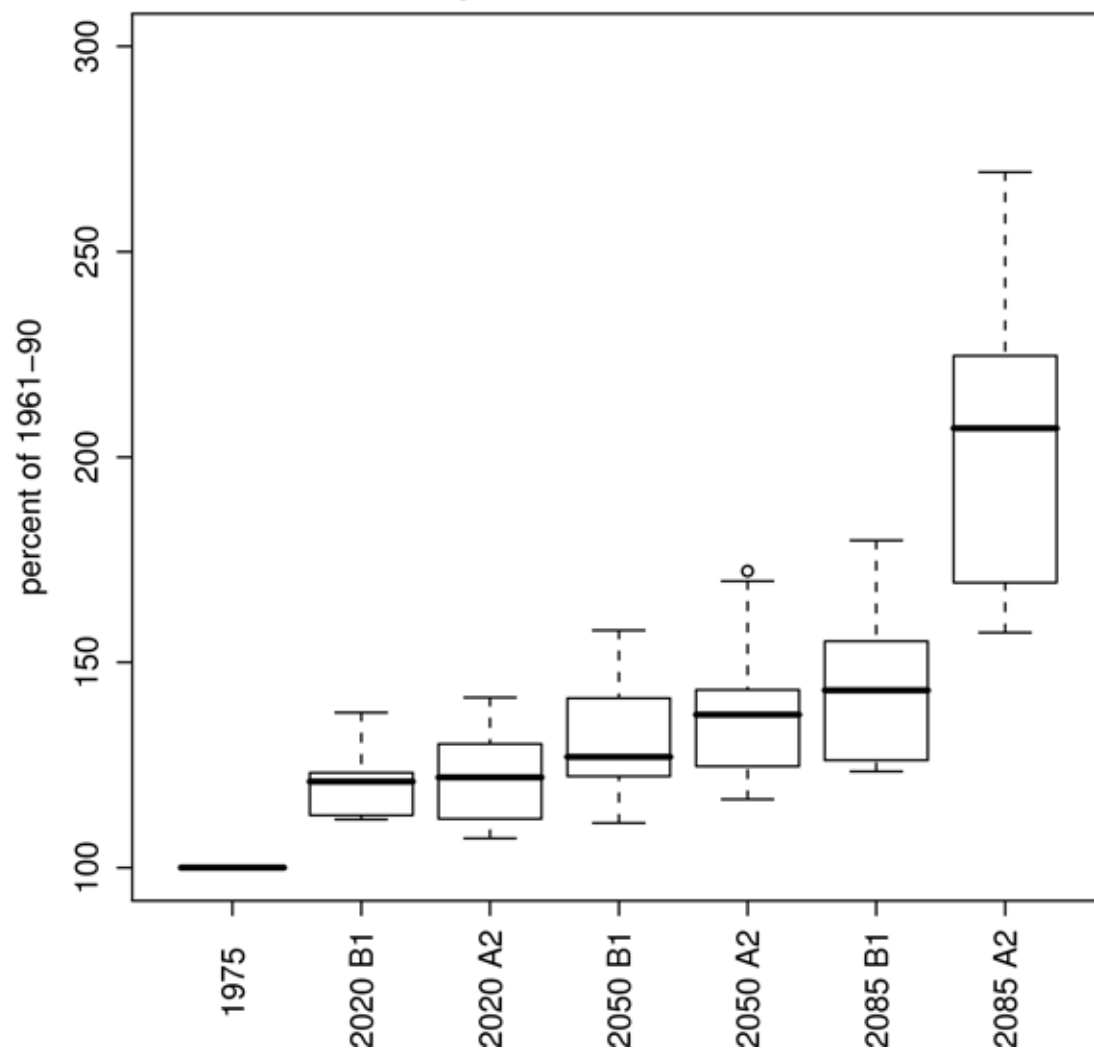
California Monthly Burned Area



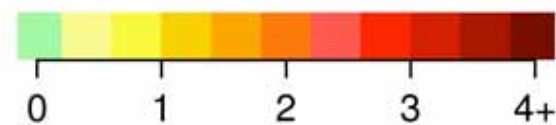
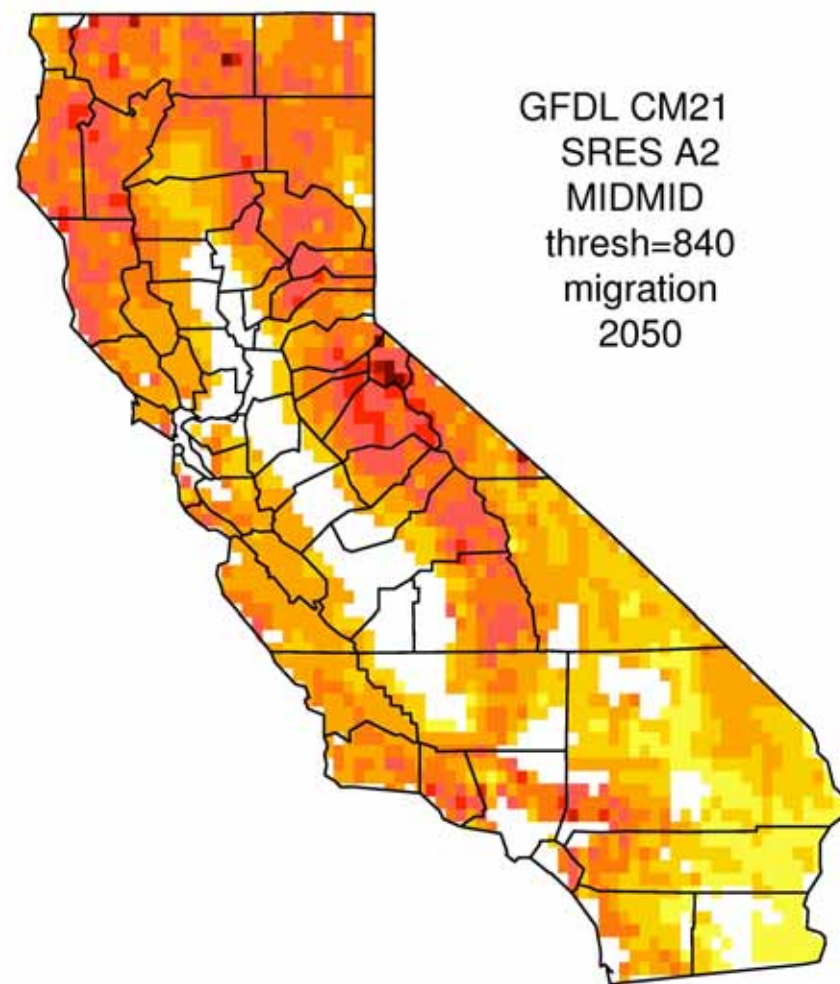
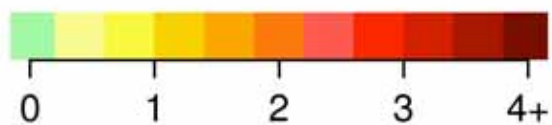
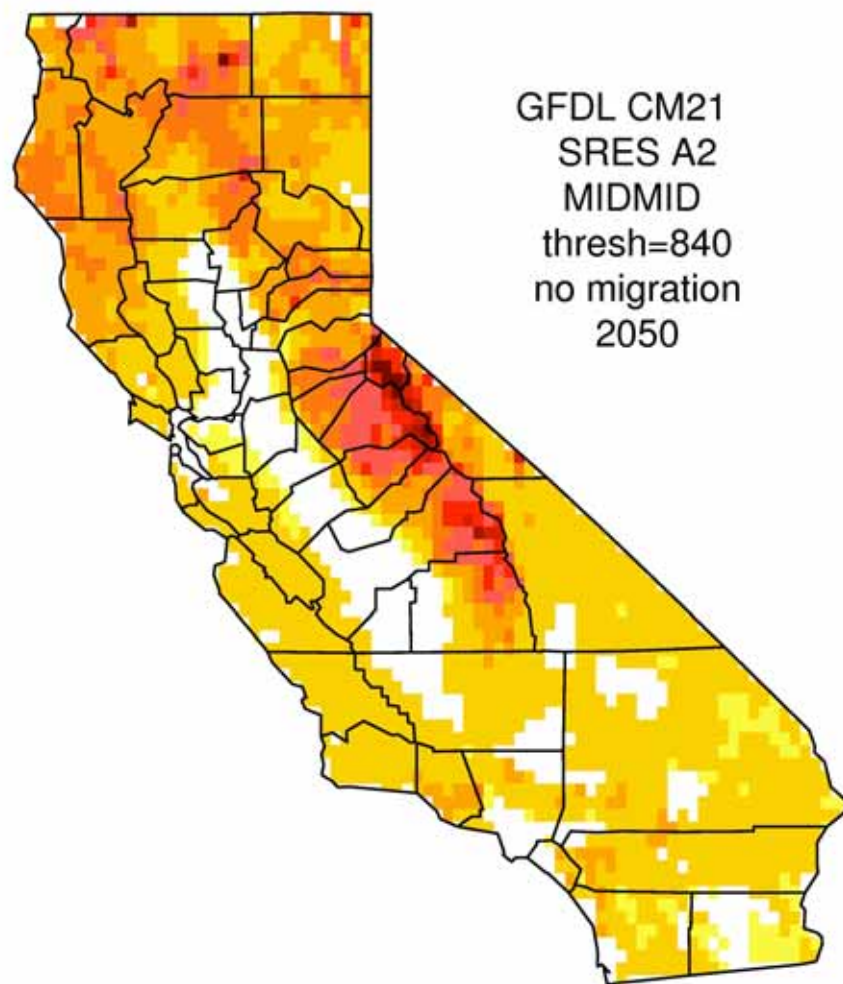
**Change in Mean Expected Fires >200 ha
by Emissions Scenario**



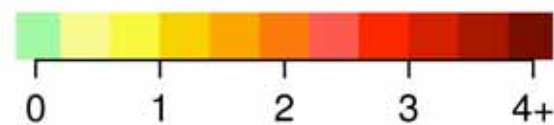
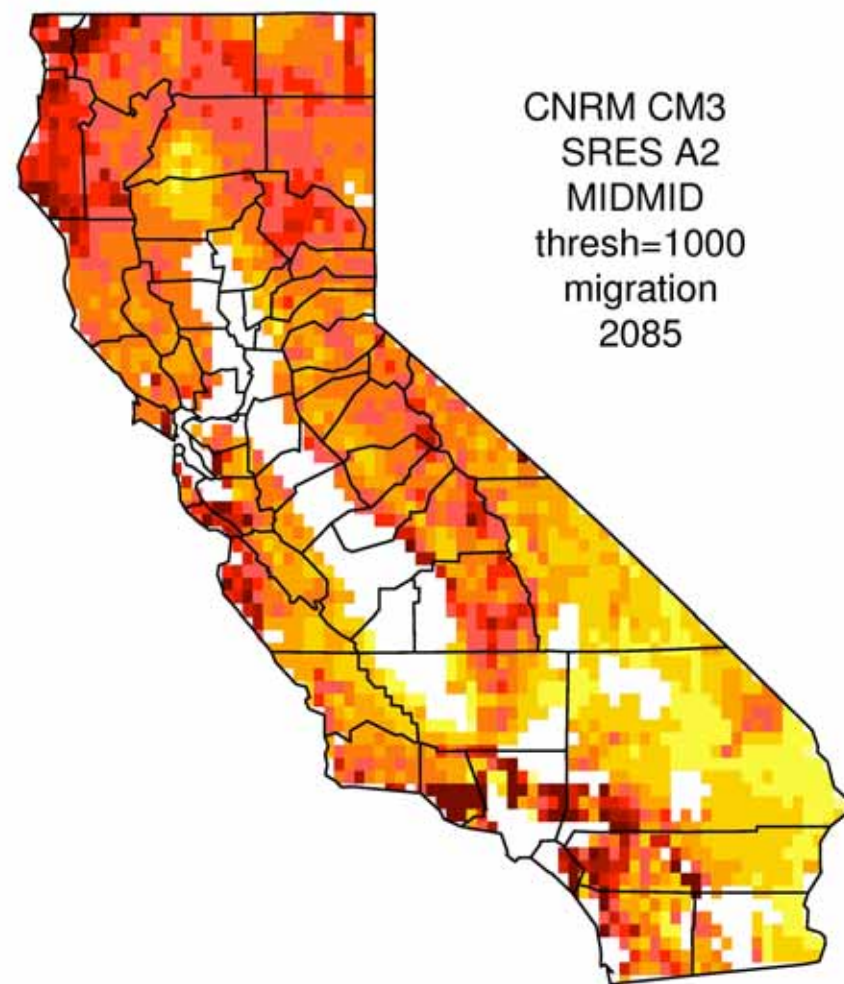
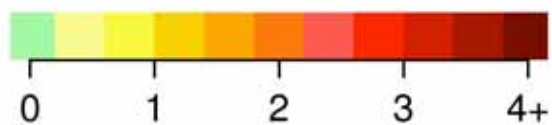
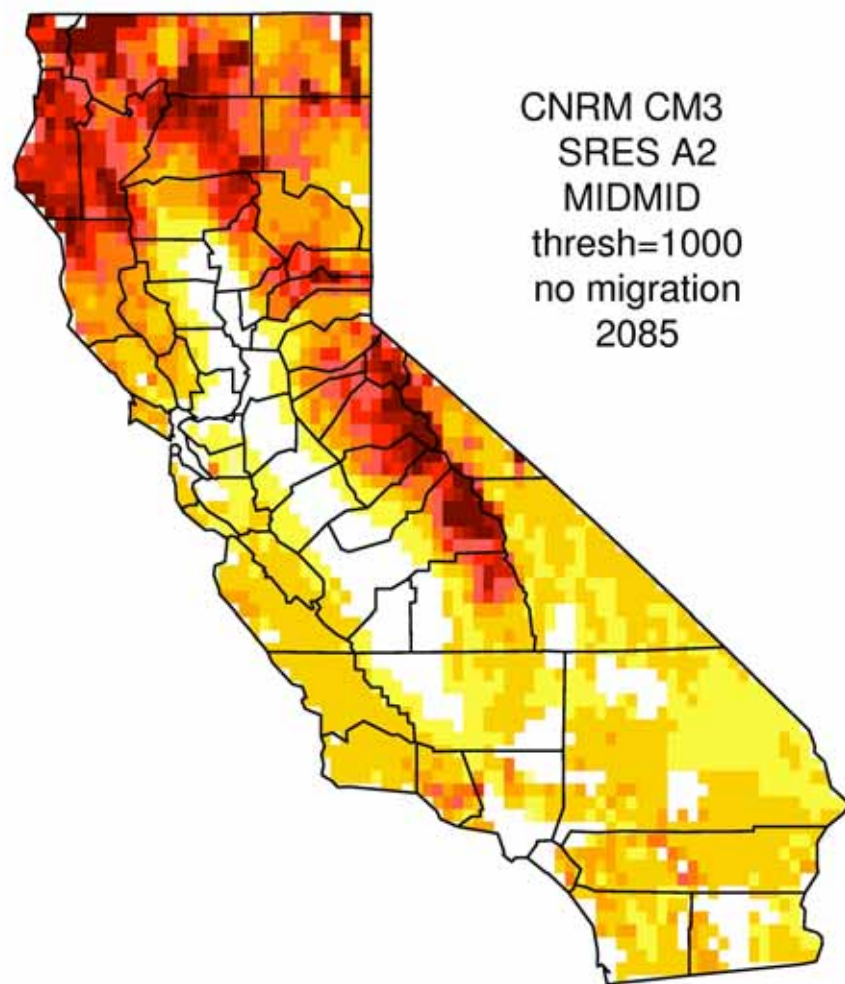
**Change in Mean Expected Burned Area
by Emissions Scenario**



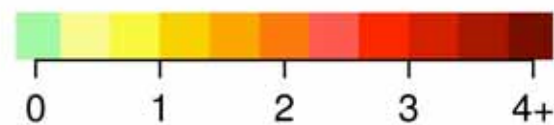
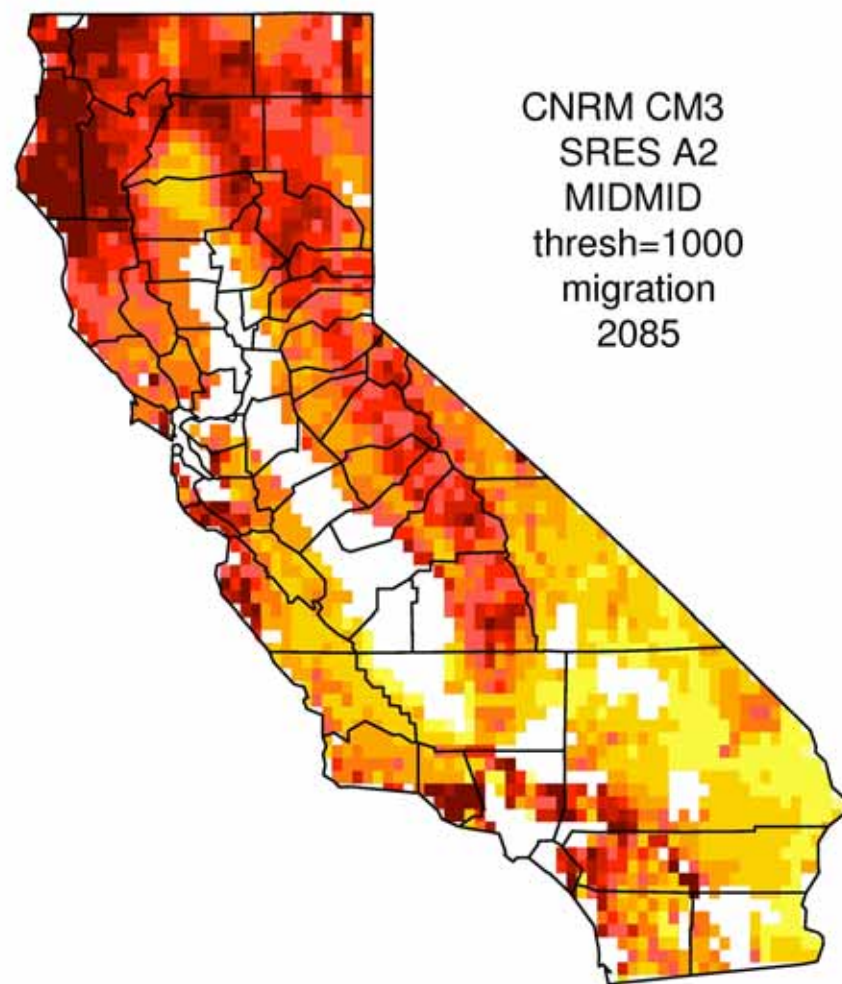
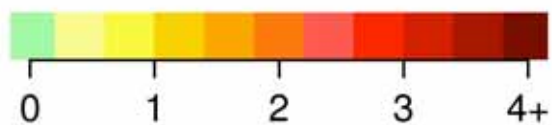
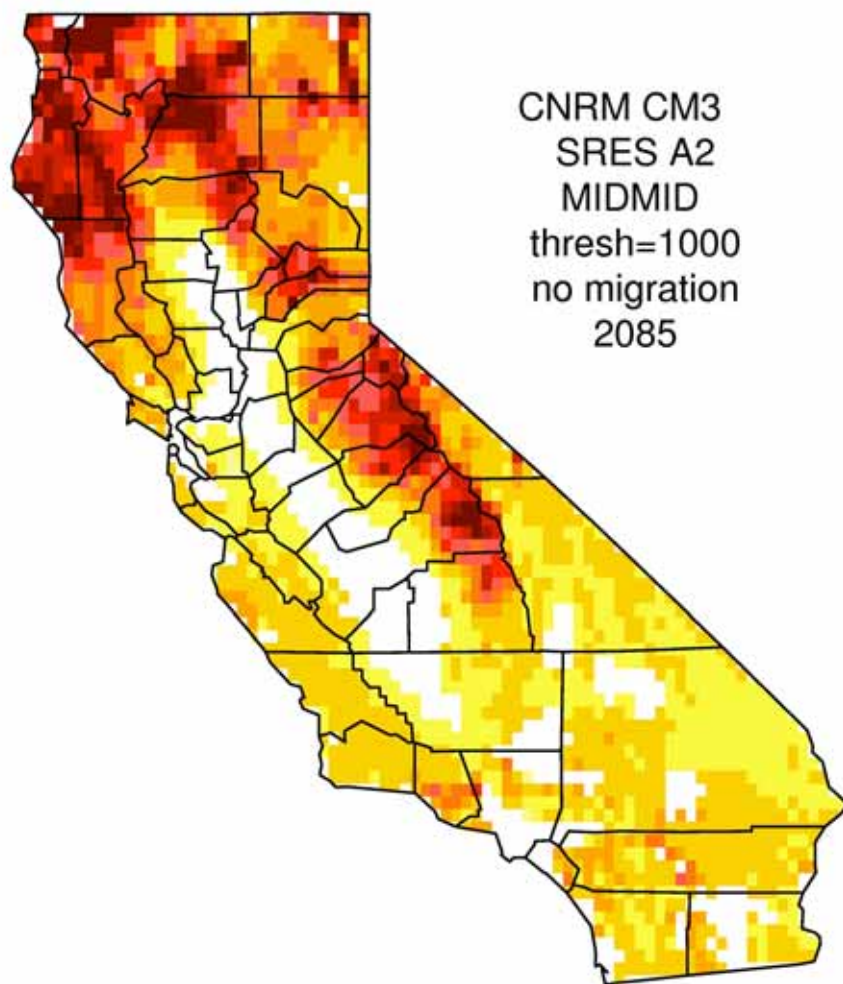
Changes in Fire Frequency for Two 2050 Scenarios



Changes in Fire Frequency for Two 2085 Scenarios



Changes in Burned Area for Two 2085 Scenarios



Changes in Burned Area for Two 2085 Scenarios

